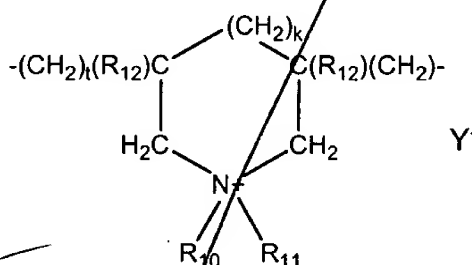


WHAT IS CLAIMED IS:

1. A composition for oxidation dyeing keratin fibres comprising, in an appropriate dyeing medium, (1) at least one oxidation dye, (2) at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):

(VI)



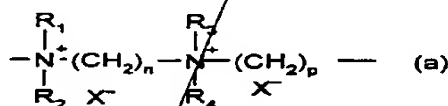
wherein:

- k and t, which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of k + t is equal to 1;
- R<sub>12</sub>, which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- R<sub>10</sub> and R<sub>11</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and C<sub>1</sub>-C<sub>4</sub> amidoalkyl groups;
- R<sub>10</sub> and R<sub>11</sub>, together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;

- Y<sup>-</sup> is an anion; and

(3) at least one quaternary polyammonium polymer chosen from:

(i) polymers comprising repeating units of formula (a):



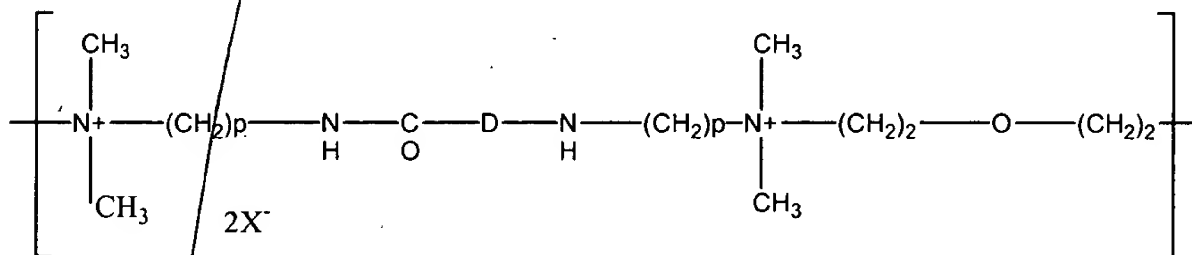
wherein:

- R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;

- n and p, which may be identical or different, are each chosen from integers ranging from 2 to 20; and

- X<sup>-</sup> is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

(ii) polyquaternary ammonium polymers comprising repeating units of formula (VIII):



(VIII)

wherein:

- p is an integer ranging from 1 to 6,
- D is chosen from direct bonds and  $-(CH_2)_r-CO-$  groups, wherein r is a number equal to 4 or 7, and
- $X^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids.

2. A composition according to claim 1, wherein said keratin fibers are chosen from human keratin fibers.

3. A composition according to claim 2, wherein said human keratin fibers are chosen from human hair.

4. A composition according to claim 1, wherein in said formula (VI) said  $R_{12}$  is hydrogen, said  $R_{10}$  and  $R_{11}$  are methyl groups, and  $Y^-$  is chloride.

5. A composition according to claim 1, wherein in said formula (a) said  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$ , which may be identical or different, are each chosen from methyl and ethyl groups, and  $X^-$  is a halogen atom.

6. A composition according to claim 5, wherein in said formula (a) said  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  are methyl groups,  $n = 3$ ,  $p = 6$  and  $X^-$  is chloride.

7. A composition according to claim 5, wherein in said formula (a) said  $R_1$ , and  $R_2$  are methyl groups,  $R_3$  and  $R_4$  are ethyl groups,  $n = p = 3$  and  $X^-$  is bromide.

8. A composition according to claim 1, wherein said D of said formula (VIII) is a

direct bond and X<sup>-</sup> is chloride.

9. A composition according to claim 1, wherein said at least one cyclohomopolymer of dialkyldiallylammonium with units of formula (VI) is present in an amount ranging from 0.05% to 5% by weight relative to the total weight of the composition.

10. A composition according to claim 9, wherein said at least one cyclohomopolymer of dialkyldiallylammonium with units of formula (VI) is present in an amount ranging from 0.1% to 3% by weight relative to the total weight of the composition.

11. A composition according to claim 4, wherein said at least one cyclohomopolymer of dialkyldiallylammonium with units of formula (VI) is present in an amount ranging from 0.05% to 5% by weight relative to the total weight of the composition.

12. A composition according to claim 11, wherein said at least one cyclohomopolymer of dialkyldiallylammonium with units of formula (VI) is present in an amount ranging from 0.1% to 3% by weight relative to the total weight of the composition.

13. A composition according to claim 1, wherein said at least one quaternary polyammonium polymer is present in an amount ranging from 0.05% to 10% by weight relative to the total weight of the composition.

14. A composition according to claim 13, wherein said at least one quaternary polyammonium polymer is present in an amount ranging from 0.2% to 5% by weight relative to the total weight of the composition.

15. A composition according to claim 1, wherein the weight ratio of said at least one quaternary polyammonium polymer to said at least one cyclohomopolymer of dialkyldiallylammonium ranges from 0.1:1 to 50:1.

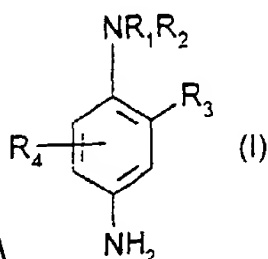
16. A composition according to claim 15, wherein said weight ratio of said at least one quaternary polyammonium polymer to said at least one cyclohomopolymer of dialkyldiallylammonium ranges from 1:1 to 10:1.

17. A composition according to claim 1, wherein said at least one oxidation dye is chosen from oxidation bases, oxidation couplers, and their acid addition salts.

18. A composition according to claim 1, wherein said at least one oxidation dye is chosen from oxidation bases.

19. A composition according to claim 18, wherein said oxidation bases are chosen from ortho- and para-phenylenediamines, double bases, ortho- and para-aminophenols, heterocyclic bases, and acid addition salts of any of the foregoing.

20. A composition according to claim 19, wherein said para-phenylenediamines are chosen from compounds of formula (I):



wherein:

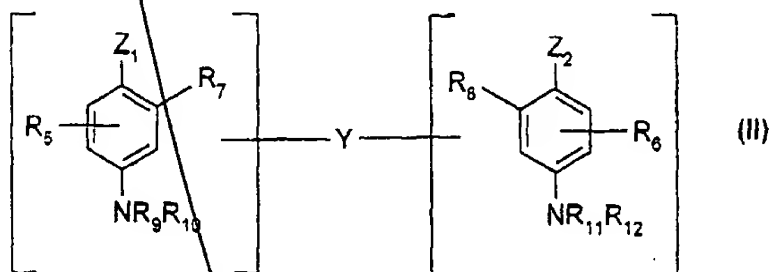
- R<sub>1</sub> is chosen from hydrogen, C<sub>1</sub>-C<sub>4</sub> alkyl groups, monohydroxy(C<sub>1</sub>-C<sub>4</sub> alkyl) groups, polyhydroxy(C<sub>2</sub>-C<sub>4</sub> alkyl) groups, (C<sub>1</sub>-C<sub>4</sub>)alkoxy(C<sub>1</sub>-C<sub>4</sub>)alkyl groups, phenyl groups, 4'-aminophenyl groups, and C<sub>1</sub>-C<sub>4</sub> alkyl groups substituted with at least one group

chosen from nitrogen-containing groups,

- $R_2$  is chosen from hydrogen,  $C_1$ - $C_4$  alkyl groups, monohydroxy( $C_1$ - $C_4$  alkyl) groups, polyhydroxy( $C_2$ - $C_4$  alkyl) groups, ( $C_1$ - $C_4$ )alkoxy( $C_1$ - $C_4$ )alkyl groups, and  $C_1$ - $C_4$  alkyl groups substituted with a nitrogen-containing group;
- $R_1$  and  $R_2$  may also form, together with the nitrogen atom to which they are bonded, a 5- or 6- membered nitrogen-containing heterocycle ring, optionally substituted with at least one group chosen from alkyl groups, hydroxyl groups and ureido groups;
- $R_3$  is chosen from hydrogen, halogens,  $C_1$ - $C_4$  alkyl groups, sulfo groups, carboxyl groups, monohydroxy( $C_1$ - $C_4$  alkyl) groups, hydroxy( $C_1$ - $C_4$  alkoxy) groups, acetylamino( $C_1$ - $C_4$  alkoxy) groups, mesylamino( $C_1$ - $C_4$  alkoxy) groups, and carbamoylamino( $C_1$ - $C_4$  alkoxy) groups; and
- $R_4$  is chosen from hydrogen, halogens, and  $C_1$ - $C_4$  alkyl groups.

21. A composition according to claim 20, wherein said  $R_3$  is chlorine.

22. A composition according to claim 19, wherein said double bases are chosen from compounds of formula (II):



wherein:

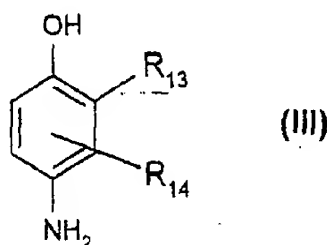
- $Z_1$  and  $Z_2$ , which may be identical or different, are each chosen from hydroxyl groups, and  $-NH_2$  groups, optionally substituted with a group chosen from  $C_1$ - $C_4$  alkyl groups, and linkers Y;
- linker Y is chosen from linear and branched, divalent alkylene groups comprising from 1 to 14 carbon atoms, optionally interrupted by, or optionally terminating with, at least one entity chosen from nitrogen-containing groups and heteroatoms, and optionally substituted with at least one group chosen from hydroxyl groups, and  $C_1$ - $C_6$  alkoxy groups;
- $R_5$  and  $R_6$ , which may be identical or different, are each chosen from hydrogen, halogens,  $C_1$ - $C_4$  alkyl groups, monohydroxy( $C_1$ - $C_4$  alkyl) groups, polyhydroxy( $C_2$ - $C_4$  alkyl) groups, amino( $C_1$ - $C_4$  alkyl) groups, and linkers Y; and
- $R_7$ ,  $R_8$ ,  $R_9$ ,  $R_{10}$ ,  $R_{11}$ , and  $R_{12}$ , which may be identical or different, are each chosen from hydrogen, linkers Y, and  $C_1$ - $C_4$  alkyl groups;
- provided that said compounds of formula (II) comprise only one linker Y per molecule.

23. A composition according to claim 22, wherein said heteroatoms are chosen from oxygen, sulfur, and nitrogen.

24. A composition according to claim 20, wherein said nitrogen-containing groups are chosen from amino, mono( $C_1$ - $C_4$ )alkylamino, ( $C_1$ - $C_4$ )dialkylamino, ( $C_1$ - $C_4$ )trialkylamino, monohydroxy( $C_1$ - $C_4$ )alkylamino, imidazolinium and ammonium radicals.

25. A composition according to claim 22, wherein said nitrogen-containing groups are chosen from amino, mono(C<sub>1</sub>-C<sub>4</sub>)alkylamino, (C<sub>1</sub>-C<sub>4</sub>)dialkylamino, (C<sub>1</sub>-C<sub>4</sub>)trialkylamino, monohydroxy(C<sub>1</sub>-C<sub>4</sub>)alkylamino, imidazolinium and ammonium radicals.

26. A composition according to claim 19, wherein said para-aminophenols are chosen from compounds of formula (III):



wherein:

- R<sub>13</sub> is chosen from hydrogen, halogens, C<sub>1</sub>-C<sub>4</sub> alkyl groups, monohydroxy(C<sub>1</sub>-C<sub>4</sub> alkyl) groups, (C<sub>1</sub>-C<sub>4</sub>)alkoxy(C<sub>1</sub>-C<sub>4</sub>)alkyl groups, amino(C<sub>1</sub>-C<sub>4</sub> alkyl), and hydroxy(C<sub>1</sub>-C<sub>4</sub>)alkylamino(C<sub>1</sub>-C<sub>4</sub> alkyl) groups;
- R<sub>14</sub> is chosen from hydrogen, halogens, C<sub>1</sub>-C<sub>4</sub> alkyl groups, monohydroxy(C<sub>1</sub>-C<sub>4</sub> alkyl) groups, polyhydroxy(C<sub>2</sub>-C<sub>4</sub> alkyl) groups, amino(C<sub>1</sub>-C<sub>4</sub> alkyl) groups, cyano(C<sub>1</sub>-C<sub>4</sub> alkyl) groups, and (C<sub>1</sub>-C<sub>4</sub>)alkoxy(C<sub>1</sub>-C<sub>4</sub>)alkyl groups.

27. A composition according to claim 26, wherein said halogens are fluorine.

28. A composition according to claim 19, wherein said heterocyclic bases are chosen from pyridine derivatives, pyrimidine derivatives, pyrazolopyrimidine derivatives,



and pyrazole derivatives.

29. A composition according to claim 18, wherein said oxidation bases are present in an amount ranging from 0.0005% to 12% by weight relative to the total weight of the composition.

30. A composition according to claim 17, wherein said oxidation couplers are chosen from meta-phenylenediamines, meta-aminophenols, meta-diphenols, heterocyclic couplers, and their acid addition salts.

31. A composition according to claim 17, wherein said oxidation couplers are present in an amount ranging from 0.0001% to 10% by weight relative to the total weight of the composition.

32. A composition according to claim 17, wherein said acid addition salts are chosen from hydrochlorides, hydrobromides, sulfates, tartrates, lactates, and acetates.

33. A composition according to claim 1 further comprising at least one direct dye.

34. A composition according to claim 1 further comprising at least one reducing agent.

35. A composition according to claim 34, wherein said at least one reducing agent is present in an amount ranging from 0.05% to 3% by weight relative to the total weight of the composition.

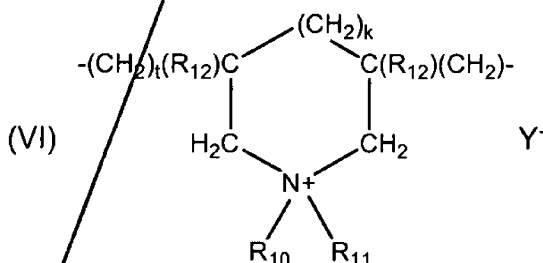
36. A composition according to claim 1 further comprising at least one fatty alcohol.

37. A composition according to claim 36, wherein said at least one fatty alcohol is

present in an amount ranging from 0.001% to 20% by weight relative to the total weight of the composition.

38. A ready-to-use cosmetic composition for oxidation dyeing keratin fibers, wherein said ready-to-use cosmetic composition is obtained by including at least one dyeing composition (A) in a dyeing medium, comprising:

- at least one oxidation dye;
- at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):



wherein:

- k and t, which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of k + t is equal to 1;
- R<sub>12</sub>, which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- R<sub>10</sub> and R<sub>11</sub>, which may be identical or different, are each chosen from alkyl groups

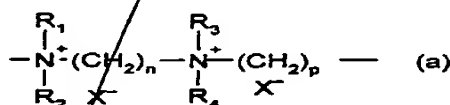
comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and C<sub>1</sub>-C<sub>4</sub> amidoalkyl groups;

- R<sub>10</sub> and R<sub>11</sub>, together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;

- Y<sup>-</sup> is an anion; and

- at least one quaternary polyammonium polymer chosen from:

(i) polymers comprising repeating units of formula (a):



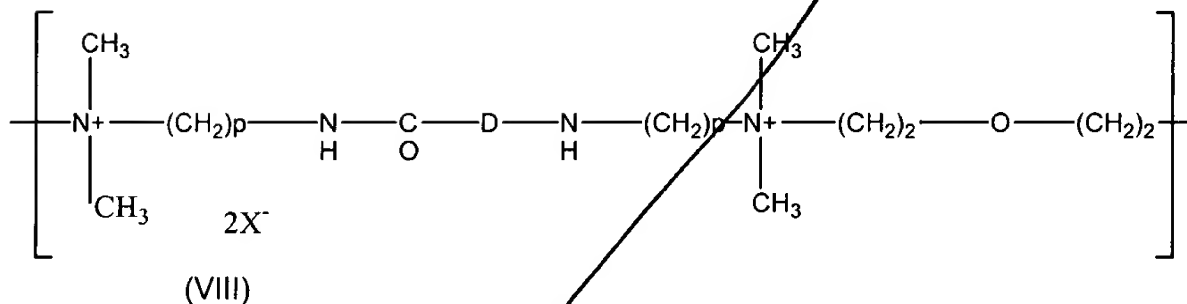
wherein:

- R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;

- n and p, which may be identical or different, are each chosen from integers ranging from 2 to 20; and

- X<sup>-</sup> is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

(ii) polyquaternary ammonium polymers comprising repeating units of formula (VIII):



wherein:

- p is an integer ranging from 1 to 6,
  - D is chosen from direct bonds and  $-(\text{CH}_2)_r\text{-CO-}$  groups, wherein r is a number equal to 4 or 7, and
  - $\text{X}^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids,
- with at least one oxidizing composition (B) comprising at least one oxidizing agent.

39. A composition according to claim 38, wherein said at least one oxidizing agent is chosen from hydrogen peroxide, urea peroxide, alkali metal bromates, alkali metal ferricyanides, persalts, and oxidation-reduction enzymes.

40. A composition according to claim 39, wherein said oxidation-reduction enzymes are chosen from laccases, peroxidases, and oxidoreductases comprising 2 electrons.

41. A composition according to claim 40, wherein said at least one oxidizing agent is hydrogen peroxide.

42. A composition according to claim 41, wherein said hydrogen peroxide is

present in an oxygenated water solution comprising a titre ranging from 1 to 40 in volume.

43. A composition according to claim 1, wherein said composition possesses a pH ranging from 4 to 12.

44. A composition according to claim 38, wherein said keratin fibers are chosen from human keratin fibers.

45. A composition according to claim 44, wherein said human keratin fibers are chosen from human hair.

46. A cosmetic composition according to claim 38 further comprising at least one thickening polymer comprising at least one fatty chain in said at least one dyeing composition (A), in said at least one oxidizing composition (B), or in said at least one dyeing composition (A) and said at least one oxidizing composition (B).

47. A composition according to claim 46, wherein said at least one thickening polymer comprising at least one fatty chain is chosen from nonionic thickening polymers.

48. A composition according to claim 46, wherein said at least one thickening polymer comprising at least one fatty chain is present in an amount ranging from 0.01% to 10% by weight relative to the total weight of the composition.

49. A composition according to claim 48, wherein said at least one thickening polymer comprising at least one fatty chain is present in an amount ranging from 0.1% to 5% by weight relative to the total weight of the composition.

50. A composition according to claim 38 further comprising at least one surfactant chosen from anionic, cationic, nonionic and amphoteric surfactants, wherein said at least one surfactant is present in said at least one dyeing composition (A), in said at

least one oxidizing composition (B), or in said at least one dyeing composition (A) and said at least one composition (B).

51. A composition according to claim 50, wherein said at least one surfactant is present in an amount ranging from 0.01% to 40% by weight relative to the total weight of the composition.

52. A composition according to claim 51, wherein said at least one surfactant is present in an amount ranging from 0.1% to 30% by weight relative to the total weight of the composition.

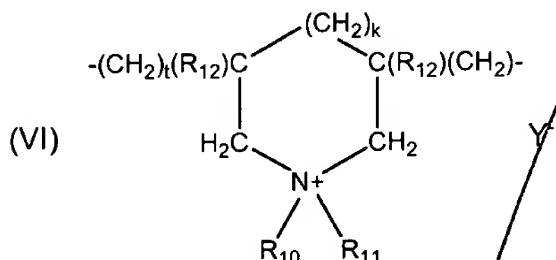
53. A composition according to claim 38 further comprising at least one thickening agent chosen from cellulose derivatives, guar derivatives, gums of microbial origin, and synthetic thickeners which do not possess a fatty chain, wherein said at least one thickening agent is present in said at least one dyeing composition (A), in said at least one oxidizing composition (B), or in said at least one dyeing composition (A) and said at least one oxidizing composition (B).

54. A composition according to claim 53, wherein said at least one thickening agent is present in an amount ranging from 0.01% to 10% by weight relative to the total weight of the composition.

55. A method for oxidation dyeing keratin fibers comprising:  
(a) applying to said keratin fibers at least one dyeing composition (A) comprising, in a dyeing medium:

- at least one oxidation dye, and
- a combination comprising:

- (I) at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):

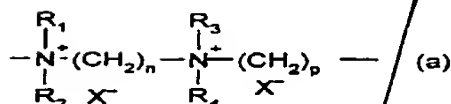


wherein:

- k and t, which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of k + t is equal to 1;
- R<sub>12</sub>, which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- R<sub>10</sub> and R<sub>11</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and C<sub>1</sub>-C<sub>4</sub> amidoalkyl groups;
- R<sub>10</sub> and R<sub>11</sub>, together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;
- Y<sup>-</sup> is an anion; and

- (II) at least one quaternary polyammonium polymer chosen from:

(i) polymers comprising repeating units of formula (a):



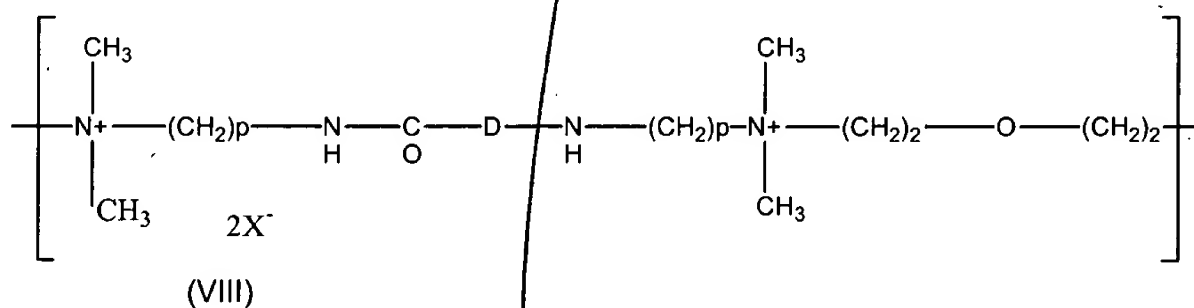
wherein:

- R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;

- n and p, which may be identical or different, are each chosen from integers ranging from 2 to 20; and

- X<sup>-</sup> is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

(ii) polyquaternary ammonium polymers comprising repeating units of formula (VIII):



wherein:

- p is an integer ranging from 1 to 6,



- D is chosen from direct bonds and  $-(CH_2)_r-CO-$  groups, wherein r is a number equal to 4 or 7, and

- X<sup>-</sup> is an anion chosen from anions derived from inorganic acids and anions derived from organic acids, and

(b) developing the color with the aid of at least one oxidizing composition (B) comprising at least one oxidizing agent, wherein said at least one oxidizing composition (B) is combined at the time of use with said at least one dyeing composition (A) or said at least one oxidizing composition (B) is applied sequentially to said at least one dyeing composition (A) without intermediate rinsing.

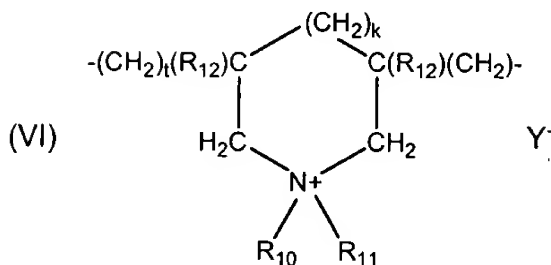
56. A method according to claim 55, wherein said keratin fibers are chosen from human keratin fibers.

57. A method according to claim 56, wherein said human keratin fibers are human hair.

58. A method for oxidation dyeing keratin fibers comprising:  
(a) applying to said keratin fibers at least one dyeing composition (A) comprising, in a dyeing medium:

- at least one oxidation dye, and
- a combination comprising:

- (I) at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):

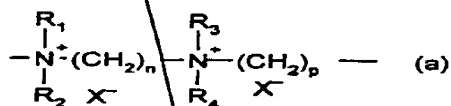


wherein:

- k and t, which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of k + t is equal to 1;
- R<sub>12</sub>, which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- R<sub>10</sub> and R<sub>11</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and C<sub>1</sub>-C<sub>4</sub> amidoalkyl groups;
- R<sub>10</sub> and R<sub>11</sub>, together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;
- Y<sup>-</sup> is an anion; and

- (II) at least one quaternary polyammonium polymer chosen from:

(i) polymers comprising repeating units of formula (a):



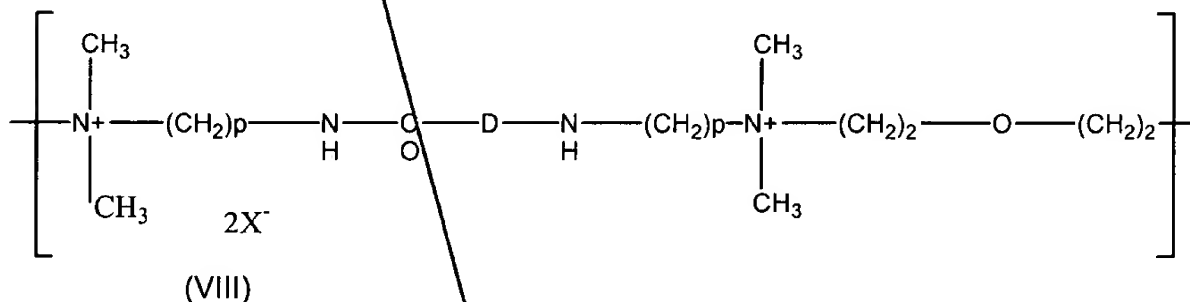
wherein:

-  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$ , which may be identical or different, are each chosen from alkyl groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;

-  $n$  and  $p$ , which may be identical or different, are each chosen from integers ranging from 2 to 20; and

-  $X^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

(ii) polyquaternary ammonium polymers comprising repeating units of formula (VIII):



wherein:

-  $p$  is an integer ranging from 1 to 6,

-  $D$  is chosen from direct bonds and  $-(\text{CH}_2)_r\text{-CO-}$  groups, wherein  $r$  is a number equal to 4 or 7, and

-  $X^-$  is an anion chosen from anions derived from inorganic acids and anions derived

from organic acids, and

(b) developing the color with the aid of at least one oxidizing composition (B) comprising:

- at least one oxidizing agent, and

- a combination comprising at least one cyclohomopolymer of

dialkyldiallylammonium as defined above and at least one other quaternary polyammonium as defined above,

- wherein said at least one oxidizing composition (B) is combined at the time of use with said at least one dyeing composition (A) or said at least one oxidizing composition (B) is applied sequentially to said at least one dyeing composition (A) without intermediate rinsing.

59. A method according to claim 58, wherein said keratin fibers are chosen from human keratin fibers.

60. A method according to claim 59, wherein said human keratin fibers are human hair.

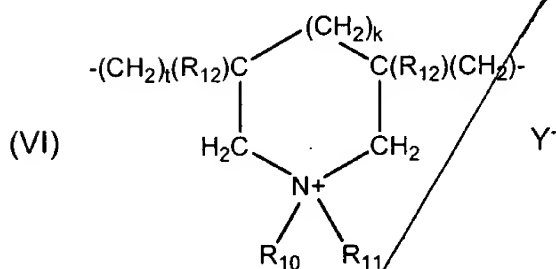
61. A method for oxidation dyeing keratin fibers comprising:

- applying to said keratin fibers at least one dyeing composition (A) comprising, in a dyeing medium, at least one oxidation dye,

- developing the color with the aid of at least one oxidizing composition (B) comprising at least one oxidizing agent,

- wherein said oxidizing composition (B) comprises a combination comprising:

- (I) at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):

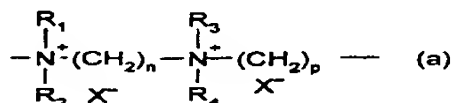


wherein:

- $k$  and  $t$ , which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of  $k + t$  is equal to 1;
- $\text{R}_{12}$ , which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- $\text{R}_{10}$  and  $\text{R}_{11}$ , which may be identical or different, are each chosen from alkyl groups comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and  $\text{C}_1\text{-C}_4$  amidoalkyl groups;
- $\text{R}_{10}$  and  $\text{R}_{11}$ , together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;
- $\text{Y}^-$  is an anion; and

- (II) at least one quaternary polyammonium polymer chosen from:

(i) polymers comprising repeating units of formula (a):



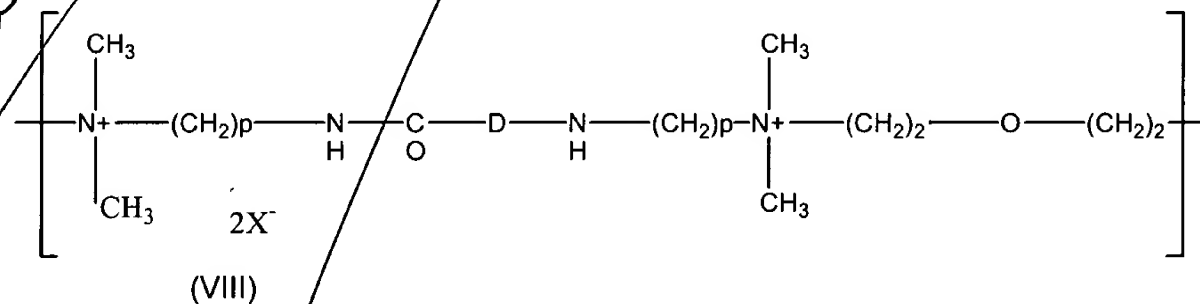
wherein:

-  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$ , which may be identical or different, are each chosen from alkyl groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;

-  $n$  and  $p$ , which may be identical or different, are each chosen from integers ranging from 2 to 20; and

-  $X^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

(ii) polyquaternary ammonium polymers comprising repeating units of formula (VIII):



wherein:

-  $p$  is an integer ranging from 1 to 6,

-  $D$  is chosen from direct bonds and  $-(\text{CH}_2)_r\text{-CO-}$  groups, wherein  $r$  is a number equal to 4 or 7, and

-  $X^-$  is an anion chosen from anions derived from inorganic acids and anions derived

from organic acids,

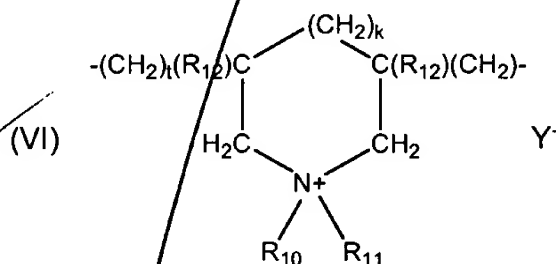
- wherein said at least one oxidizing composition (B) is combined at the time of use with said at least one dyeing composition (A) or wherein said at least one oxidizing composition (B) is applied sequentially to said at least one dyeing composition (A) without intermediate rinsing.

62. A method according to claim 61, wherein said keratin fibers are chosen from human keratin fibers.

63. A method according to claim 62, wherein said human keratin fibers are human hair.

64. A kit for dyeing keratin fibers comprising at least two compartments, wherein:  
- a first compartment comprises at least one oxidation dye and a combination comprising:

(I) at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):

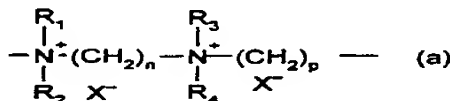


wherein:

- k and t, which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of k + t is equal to 1;
- R<sub>12</sub>, which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- R<sub>10</sub> and R<sub>11</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and C<sub>1</sub>-C<sub>4</sub> amidoalkyl groups;
- R<sub>10</sub> and R<sub>11</sub>, together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;
- Y<sup>-</sup> is an anion; and

(II) at least one quaternary polyammonium polymer chosen from:

(i) polymers comprising repeating units of formula (a):



wherein:

- R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which may be identical or different, are each chosen from alkyl



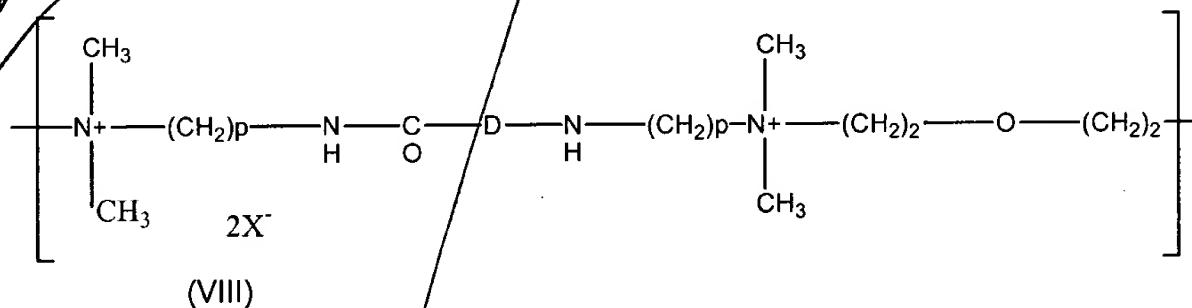
groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;

- n and p, which may be identical or different, are each chosen from integers ranging from 2 to 20; and

- X<sup>-</sup> is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

(ii) polyquaternary ammonium polymers comprising repeating units of formula

(VIII):



wherein:

- p is an integer ranging from 1 to 6,
- D is chosen from direct bonds and  $-(\text{CH}_2)_r\text{-CO-}$  groups, wherein r is a number equal to 4 or 7, and
- X<sup>-</sup> is an anion chosen from anions derived from inorganic acids and anions derived from organic acids, and
- a second compartment comprises at least one oxidizing agent.

65. A kit according to claim 64, wherein said keratin fibers are chosen from human keratin fibers.

66. A kit according to claim 65, wherein said human keratin fibers are human hair.

67. A composition according to claim 36, wherein said at least one fatty alcohol is chosen from linear and branched, saturated and unsaturated fatty alcohols.

68. A composition according to claim 1, wherein in said  $R_{10}$  and  $R_{11}$  said alkyl radical of said hydroxyalkyl groups comprises from 1 to 5 carbon atoms.

69. A composition according to claim 38, wherein in said  $R_{10}$  and  $R_{11}$  said alkyl radical of said hydroxyalkyl groups comprises from 1 to 5 carbon atoms.

70. A composition according to claim 55, wherein in said  $R_{10}$  and  $R_{11}$  said alkyl radical of said hydroxyalkyl groups comprises from 1 to 5 carbon atoms.

71. A composition according to claim 58, wherein in said  $R_{10}$  and  $R_{11}$  said alkyl radical of said hydroxyalkyl groups comprises from 1 to 5 carbon atoms.

72. A composition according to claim 61, wherein in said  $R_{10}$  and  $R_{11}$  said alkyl radical of said hydroxyalkyl groups comprises from 1 to 5 carbon atoms.

73. A composition according to claim 64, wherein in said  $R_{10}$  and  $R_{11}$  said alkyl radical of said hydroxyalkyl groups comprises from 1 to 5 carbon atoms.

74. A method for oxidation dyeing keratin fibers comprising:

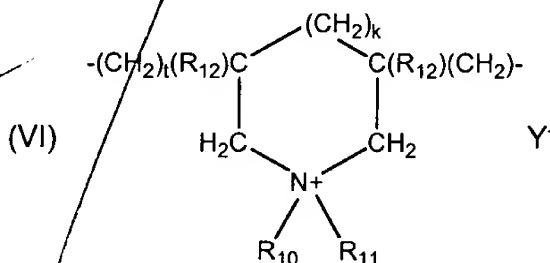
(a) applying to said keratin fibers at least one dyeing composition (A) comprising, in a dyeing medium:

- at least one oxidation dye, and

(b) developing the color with the aid of at least one oxidizing composition (B) comprising at least one oxidizing agent, wherein said at least one oxidizing composition (B) is combined at the time of use with said at least one dyeing composition (A) or said at least one oxidizing composition (B) is applied sequentially to said at least one dyeing composition (A) without intermediate rinsing, wherein:

- (I) said at least one dyeing composition (A) comprises:

- at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):



wherein:

- k and t, which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of k + t is equal to 1;
- R<sub>12</sub>, which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- R<sub>10</sub> and R<sub>11</sub>, which may be identical or different, are each chosen from alkyl groups

comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and C<sub>1</sub>-C<sub>4</sub> amidoalkyl groups;

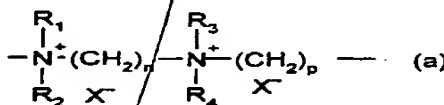
- R<sub>10</sub> and R<sub>11</sub>, together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;

- Y<sup>-</sup> is an anion; and wherein:

- (II) said at least one oxidizing composition (B) comprises:

- at least one quaternary polyammonium polymer chosen from:

- (i) polymers comprising repeating units of formula (a):



wherein:

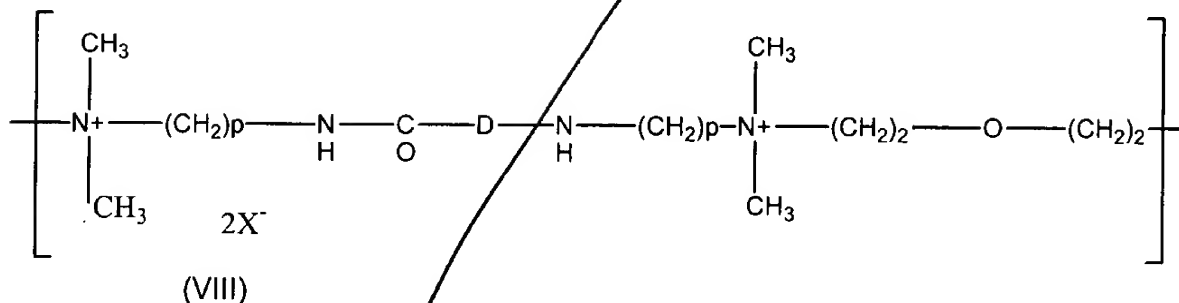
- R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;

- n and p, which may be identical or different, are each chosen from integers ranging from 2 to 20; and

- X<sup>-</sup> is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

- (ii) polyquaternary ammonium polymers comprising repeating units of

formula (VIII):



wherein:

- p is an integer ranging from 1 to 6,
- D is chosen from direct bonds and  $-(\text{CH}_2)_r\text{-CO-}$  groups, wherein r is a number equal to 4 or 7, and
- $\text{X}^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids.

75. A method according to claim 74, wherein said keratin fibers are chosen from human keratin fibers.

76. A method according to claim 75, wherein said human keratin fibers are human hair.

77. A method for oxidation dyeing keratin fibers comprising:

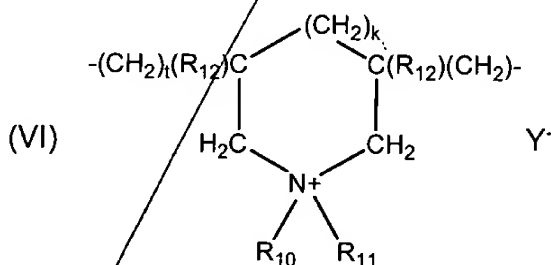
(a) applying to said keratin fibers at least one dyeing composition (A) comprising, in a dyeing medium:

- at least one oxidation dye, and

(b) developing the color with the aid of at least one oxidizing composition (B) comprising at least one oxidizing agent, wherein said at least one oxidizing composition (B) is combined at the time of use with said at least one dyeing composition (A) or said at least one oxidizing composition (B) is applied sequentially to said at least one dyeing composition (A) without intermediate rinsing, wherein:

- (I) said at least one oxidizing composition (B) comprises:

- at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):



wherein:

- k and t, which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of k + t is equal to 1;
- R<sub>12</sub>, which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- R<sub>10</sub> and R<sub>11</sub>, which may be identical or different, are each chosen from alkyl groups

comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and C<sub>1</sub>-C<sub>4</sub> amidoalkyl groups;

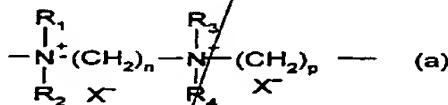
- R<sub>10</sub> and R<sub>11</sub>, together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;

- Y<sup>-</sup> is an anion; and wherein:

- (II) said at least one dyeing composition (A) comprises:

- at least one quaternary polyammonium polymer chosen from:

- (i) polymers comprising repeating units of formula (a):



wherein:

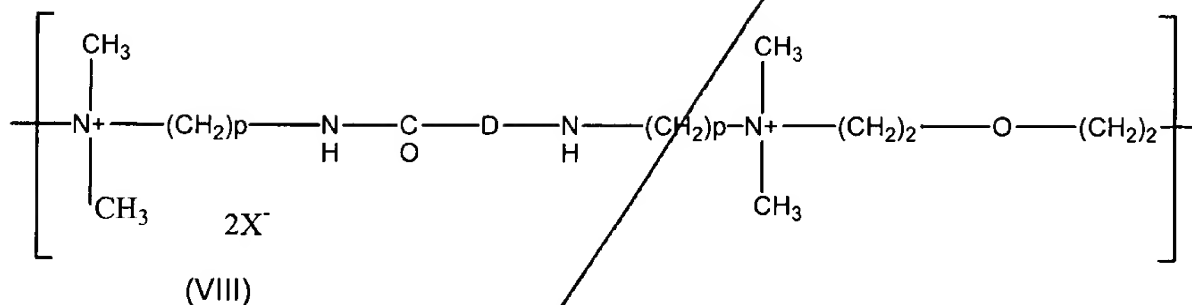
- R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;

- n and p, which may be identical or different, are each chosen from integers ranging from 2 to 20; and

- X<sup>-</sup> is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

- (ii) polyquaternary ammonium polymers comprising repeating units of

formula (VIII):



wherein:

- p is an integer ranging from 1 to 6,
- D is chosen from direct bonds and  $-(\text{CH}_2)_r-\text{CO}-$  groups, wherein r is a number equal to 4 or 7, and
- $\text{X}^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids.

78. A method according to claim 77, wherein said keratin fibers are chosen from human keratin fibers.

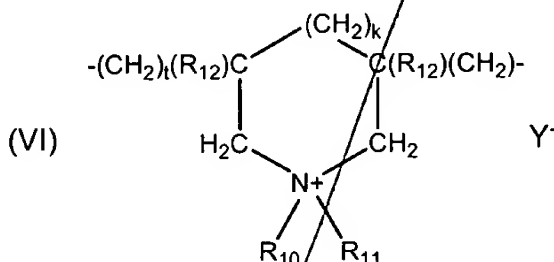
79. A method according to claim 78, wherein said human keratin fibers are human hair.

80. A kit for dyeing keratin fibers comprising at least two compartments, wherein:
- a first compartment comprises at least one oxidation dye and
  - a second compartment comprises at least one oxidizing agent and a combination

comprising:



(I) at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):

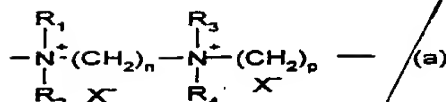


wherein:

- k and t, which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of k + t is equal to 1;
- R<sub>12</sub>, which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- R<sub>10</sub> and R<sub>11</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and C<sub>1</sub>-C<sub>4</sub> amidoalkyl groups;
- R<sub>10</sub> and R<sub>11</sub>, together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;
- Y<sup>-</sup> is an anion; and

(II) at least one quaternary polyammonium polymer chosen from:

(i) polymers comprising repeating units of formula (a):



wherein:

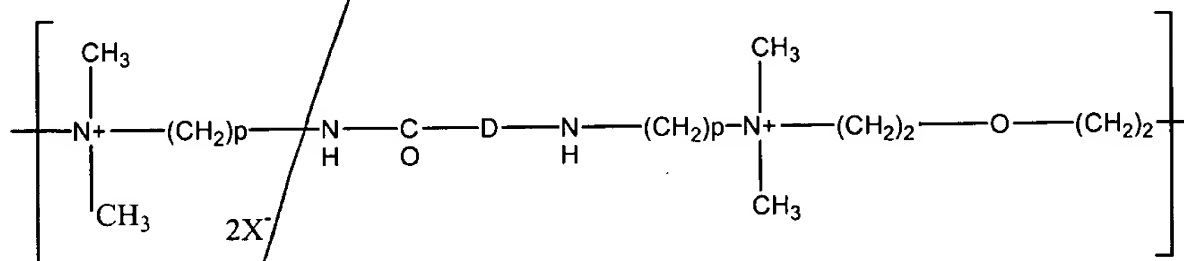
-  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$ , which may be identical or different, are each chosen from alkyl groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;

-  $n$  and  $p$ , which may be identical or different, are each chosen from integers ranging from 2 to 20; and

-  $X^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

(ii) polyquaternary ammonium polymers comprising repeating units of formula

(VIII):



(VIII)

wherein:

- p is an integer ranging from 1 to 6,

- D is chosen from direct bonds and  $-(CH_2)_r-CO-$  groups, wherein r is a number equal to 4 or 7, and

- X<sup>-</sup> is an anion chosen from anions derived from inorganic acids and anions derived from organic acids.

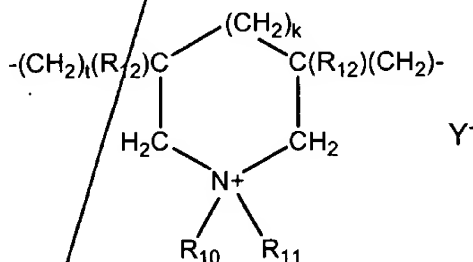
81. A kit according to claim 80, wherein said keratin fibers are chosen from human keratin fibers.

82. A kit according to claim 81, wherein said human keratin fibers are human hair.

83. A kit for dyeing keratin fibers comprising at least two compartments, wherein:

- a first compartment comprises at least one oxidation dye and a combination comprising:

(I) at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):

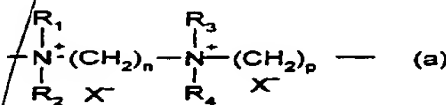


wherein:

- k and t, which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of k + t is equal to 1;
- R<sub>12</sub>, which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- R<sub>10</sub> and R<sub>11</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and C<sub>1</sub>-C<sub>4</sub> amidoalkyl groups;
- R<sub>10</sub> and R<sub>11</sub>, together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;
- Y<sup>-</sup> is an anion; and

(II) at least one quaternary polyammonium polymer chosen from:

(i) polymers comprising repeating units of formula (a):



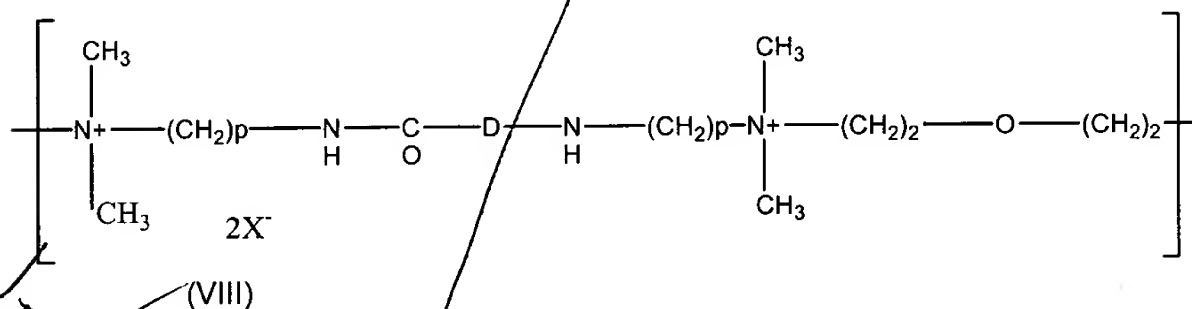
wherein:

- R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;
- n and p, which may be identical or different, are each chosen from integers ranging

from 2 to 20; and

-  $X^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

(ii) polyquaternary ammonium polymers comprising repeating units of formula (VIII):



wherein:

- p is an integer ranging from 1 to 6,
- D is chosen from direct bonds and  $-(\text{CH}_2)_r\text{-CO}-$  groups, wherein r is a number equal to 4 or 7, and
- $X^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids, and
- a second compartment comprises at least one oxidizing agent and a combination comprising at least one cyclohomopolymer of dialkyldiallylammonium as defined above and at least one other quaternary polyammonium polymer as defined above.

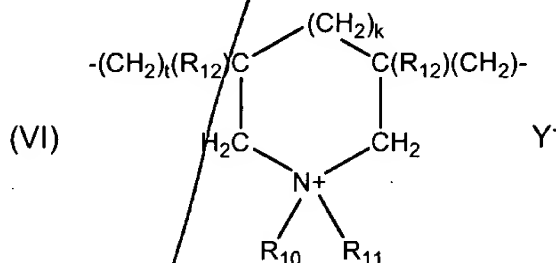
84. A kit according to claim 83, wherein said keratin fibers are chosen from

human keratin fibers.

85. A kit according to claim 84, wherein said human keratin fibers are human hair.

86. A kit for dyeing keratin fibers comprising at least two compartments, wherein:

- a first compartment comprises at least one oxidation dye and at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):



wherein:

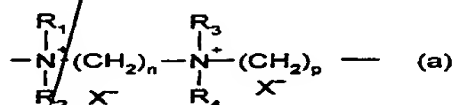
- k and t, which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of k + t is equal to 1;
- R<sub>12</sub>, which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- R<sub>10</sub> and R<sub>11</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and C<sub>1</sub>-C<sub>4</sub> amidoalkyl groups;

- R<sub>10</sub> and R<sub>11</sub>, together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;

- Y<sup>-</sup> is an anion, and wherein:

- a second compartment comprises at least one oxidizing agent and at least one quaternary polyammonium polymer chosen from:

(i) polymers comprising repeating units of formula (a):



wherein:

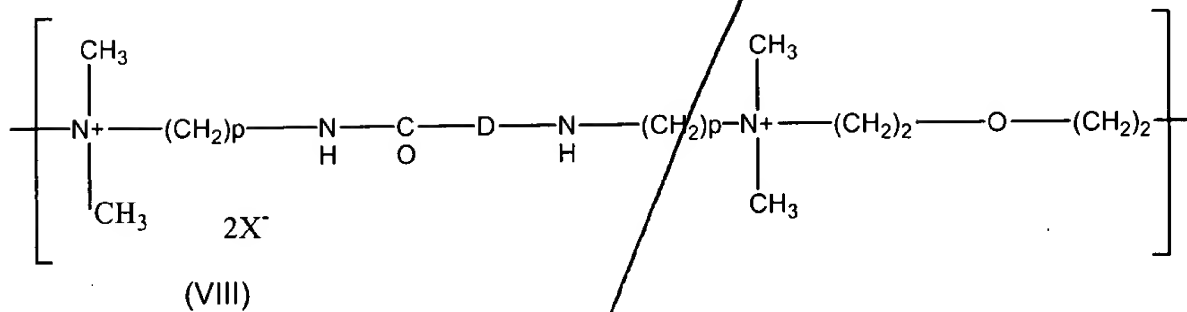
- R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which may be identical or different, are each chosen from alkyl groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;

- n and p, which may be identical or different, are each chosen from integers ranging from 2 to 20; and

- X<sup>-</sup> is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

(ii) polyquaternary ammonium polymers comprising repeating units of formula

(VIII):



wherein:

- p is an integer ranging from 1 to 6,
- D is chosen from direct bonds and  $-(\text{CH}_2)_r\text{-CO-}$  groups, wherein r is a number equal to 4 or 7, and
- $\text{X}^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids.

87. A kit according to claim 86, wherein said keratin fibers are chosen from human keratin fibers.

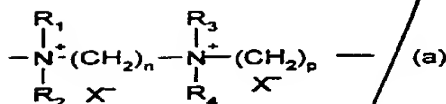
88. A kit according to claim 87, wherein said human keratin fibers are human hair.

89. A kit for dyeing keratin fibers comprising at least two compartments, wherein:

- a first compartment comprises at least one oxidation dye and at least one quaternary polyammonium polymer chosen from:

(i) polymers comprising repeating units of formula (a):





wherein:

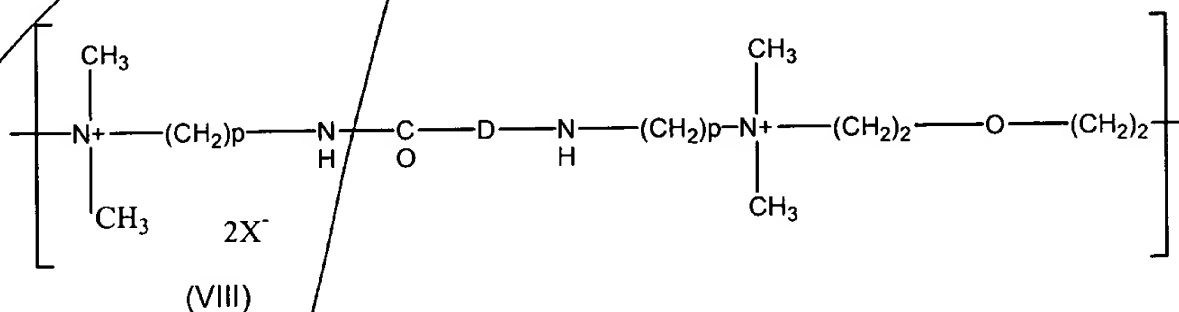
-  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$ , which may be identical or different, are each chosen from alkyl groups comprising from 1 to 4 carbon atoms and hydroxyalkyl groups comprising from 1 to 4 carbon atoms;

-  $n$  and  $p$ , which may be identical or different, are each chosen from integers ranging from 2 to 20; and

-  $X^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids; and

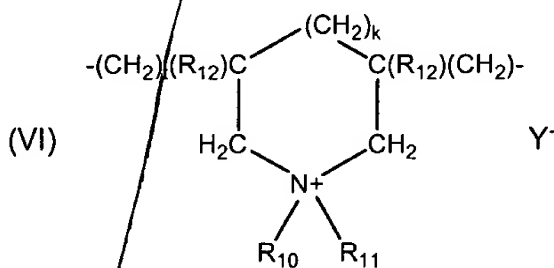
(ii) polyquaternary ammonium polymers comprising repeating units of formula

(VIII):



wherein:

- p is an integer ranging from 1 to 6,
- D is chosen from direct bonds and  $-(CH_2)_r-CO-$  groups, wherein r is a number equal to 4 or 7, and
- $X^-$  is an anion chosen from anions derived from inorganic acids and anions derived from organic acids, and wherein:
- a second compartment comprises at least one oxidizing agent and at least one cyclohomopolymer of dialkyldiallylammonium comprising, as a constituent of the chain, at least one unit of structure (VI):



wherein:

- k and t, which may be identical or different, are each chosen from 0 and 1, with the proviso that the sum of k + t is equal to 1;
- $R_{12}$ , which may be identical or different, are each chosen from hydrogen atoms and methyl groups;
- $R_{10}$  and  $R_{11}$ , which may be identical or different, are each chosen from alkyl groups comprising from 1 to 22 carbon atoms, hydroxyalkyl groups, and  $C_1-C_4$  amidoalkyl groups;

- R<sub>10</sub> and R<sub>11</sub>, together with the nitrogen atom to which they are commonly bonded, may additionally form at least one heterocyclic group;

- Y<sup>-</sup> is an anion.

90. A kit according to claim 89, wherein said keratin fibers are chosen from human keratin fibers.

91. A kit according to claim 90, wherein said human keratin fibers are human hair.